CLAIMS

1. A rotational angle detection device having: a rotating rotor; an exciting coil secured to the rotor and having one end thereof to which an alternating-current exciting current is applied and the other end thereof connected to an earth wire; and a stator coil stationarily provided around the rotor and having one end thereof for taking out an output voltage and the other end thereof connected to the earth wire, the stator coil being for outputting the voltage which is made as a result that an alternating-current bias voltage, caused by an impedance of the earth wire and the exciting current, is superimposed on an alternating-current rotational angle voltage the amplitude of which fluctuates in dependence on the rotational angle of the rotor; the improvement of the rotational angle detection device further comprising: memory means for storing data necessary to calculate values of temperature-dependent components in connection with the passing time from a reference time; rotational angle voltage detection means for calculating the alternating-current rotational angle voltage by subtraction means for subtracting the data stored in the memory means; bias detection means for calculating the alternating-current bias voltage by addition means for adding the data stored in the memory means; and means for calculating an amplitude value of the alternating-current rotational angle voltage, a phase difference of the alternating-current rotational angle voltage from the reference time, an amplitude value of the alternating-current bias voltage, and a phase difference of the alternating-current bias voltage from the reference time, based on values sampled by the rotational angle voltage detection means and the bias detection means at at least two different time points.

2. The rotational angle detection device according to claim 1, characterized by further comprising: means for successively sampling and storing the output voltages during the rotation of the rotor; means for

specifying first output voltages for at least one cycle including the maximum peak value, from the output voltages being stored; means for specifying second output voltages for at least one cycle including the maximum bottom value, from the output voltages being stored; and means for successively subtracting and adding voltages which are the same in the passing time from the reference time, of the specified first output voltages and the specified second output voltages.

3. A temperature compensation method for the temperature which affects an output voltage of a rotational angle detection device for outputting the voltage which is made as a result that an alternating-current bias voltage caused by an impedance of an earth wire and an exciting current is superimposed on an alternating-current rotational angle voltage whose amplitude fluctuates in dependence on the rotational angle of a rotor, the temperature compensation method comprising: a first step of successively sampling the output voltages, with the rotor being rotated; a second step of specifying first output voltages for at least one cycle in rotational angle including the maximum peak value, from the sampled output voltages, a third step of specifying second output voltages for at least one cycle in rotational angle including the maximum bottom value, from the sampled output voltages; a fourth step of calculating the alternating-current rotational angle voltage by successively subtracting first and second output voltages which are the same in the passing time from a reference time, of the specified first output voltages and the specified second output voltages; a fifth step of calculating the alternating-current bias voltage by successively adding first and second output voltages which are the same in the passing time from the reference time, of the specified first output voltages and the specified second output voltages; and a sixth step of calculating an amplitude value of the alternating-current rotational angle voltage, a phase difference of the alternating-current rotational angle voltage from the reference time, an

amplitude value of the alternating-current bias voltage, and a phase difference of the alternating-current bias voltage from the reference time, based on values which have been sampled at at least two different time points at the fourth step and the fifth step.